

04-13-04

1615

VPI/98-06DIV

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner : Not Yet Assigned
Group : 1615
Applicants : Michael R. Hale et al.
Appln. No. : 10/600,937 Confirmation No.: 6239
Filed : June 20, 2003
For : SULFONAMIDE INHIBITORS OF ASPARTYL PROTEASE

New York, New York
April 12, 2004

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

TRANSMITTAL LETTER FOR
INFORMATION DISCLOSURE STATEMENT

Sir:

Transmitted herewith is an Information Disclosure Statement in the above-identified application. This Statement is submitted:

- within three months of the application filing date;
- more than three months from the application filing date but before the mailing date of the first Office Action on the merits.

In accordance with 37 C.F.R. §§ 1.97(b) (3), submission of this Statement requires no fee. However, if for any reason a fee is due, the Director is hereby

EV132198497US



authorized to charge payment of any fees required in connection with this Information Disclosure Statement to Deposit Account No. 06-1075. A duplicate copy of this letter is transmitted herewith.

Respectfully submitted,

James F. Haley, Jr. (Reg. No. 27,794)
Min Wang (Reg. No. 51,303)
Attorneys for Applicants

c/o FISH & NEAVE
Customer No. 1473
1251 Avenue of the Americas
New York, New York 10020-1104
Tel.: (212) 596-9000



VPI/98-06DIV

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner : Not Yet Assigned
Group : 1615
Applicants : Michael R. Hale et al.
Appln. No. : 10/600,937 Confirmation No.: 6239
Filed : June 20, 2003
For : SULFONAMIDE INHIBITORS OF ASPARTYL PROTEASE

New York, New York
April 12, 2004

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

STATEMENT UNDER 37 C.F.R. §§ 1.56 AND 1.97(b)

Sir:

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b),
applicants, through their representatives, make of record
the documents listed below. A completed Form PTO-1449
listing all of the documents is enclosed herewith.

United States Patents

Mohrs et al.	3,743,722	issued July 3, 1973
Descamps et al.	4,330,542	issued May 18, 1982
Ryono et al.	4,629,724	issued December 16, 1986
Martin et al.	5,196,438	issued March 23, 1993
Kempf et al.	5,354,866	issued October 11, 1994
Talley et al.	5,622,949	issued April 22, 1997
Tung	5,723,490	issued March 3, 1998
Vazquez et al.	5,744,481	issued April 28, 1998
Vazquez et al.	5,843,946	issued December 1, 1998

EV132198497US

European Patent Applications

0 022 118	published January 7, 1981
0 181 071	published May 14, 1986
0 264 795	published April 27, 1988
0 346 847	published December 20, 1989
0 364 804	published April 25, 1990
0 434 365	published June 26, 1991
0 468 641	published January 29, 1992
0 486 948	published May 27, 1992
0 541 168	published May 12, 1993
0 594 540	published April 27, 1994

German Patent Application

DE 3542567 published June 5, 1986

Great Britain Patent Application

2,167,759	published June 4, 1986
2,200,115	published July 27, 1988

PCT International Patent Applications

WO 90/07329	published July 12, 1990
WO 91/00725	published January 24, 1991
WO 91/18866	published December 12, 1991
WO 92/08688	published May 29, 1992
WO 92/08698	published May 29, 1992
WO 92/08699	published May 29, 1992
WO 92/08700	published May 29, 1992
WO 92/08701	published May 29, 1992
WO 92/17176	published October 15, 1992
WO 93/23368	published November 25, 1993
WO 93/23388	published November 25, 1993
WO 93/23379	published November 25, 1993
WO 94/04491	published March 3, 1994
WO 94/04492	published March 3, 1994
WO 94/04493	published March 3, 1994
WO 94/05639	published March 17, 1994
WO 94/10134	published May 11, 1994
WO 94/10136	published May 11, 1994
WO 94/18192	published August 18, 1994
WO 94/19322	published September 1, 1994

WO 95/06030	published March 2, 1995
WO 95/07269	published March 16, 1995
WO 95/09843	published April 13, 1995
WO 95/14016	published May 26, 1995
WO 95/32185	published November 30, 1995
WO 96/33184	published October 24, 1996
WO 96/33187	published October 24, 1996
WO 00/76961	published December 21, 2000

Japanese Patent Abstracts

JP 59-46252	published March 15, 1984
JP 59-48449	published March 19, 1984
JP 61-71830	published April 12, 1986

Other Documents

Thompson et al., Ann. Reports Med. Chem., 36, pp. 247-257 (2001).

Polman et al., BMJ, 321, pp. 490-494 (2000).

Cohen et al., J. Neuroimmun., 98, pp. 29-36 (1999).

Menendez-Arias et al., "Moloney Murine Leukemia Virus Protease: Bacterial Expression and Characterization of the Purified Enzyme," Virology, 1996, pp. 557-563 (1993).

Berger et al., "Multiple-sclerosis-like Illness Occurring with Human Immunodeficiency Virus Infection," Neurology, 39, pp. 324-329 (1989).

Facchini et al., "Human Immunodeficiency Virus-1 Infection and Multiple Sclerosis-like Illness in a Child," Pediatr. Neurol., 26, pp. 231-235 (2002).

Banker et al., Modern Pharmaceutics, pp. 627-629 (1996).

R. Bone et al., "X-ray Crystal Structure of the HIV Protease Complex with L-700,417, an Inhibitor with Pseudo C₂ Symmetry", J. Am. Chem. Soc., 113, pp. 9382-84 (1991).

J.C. Craig et al., "Antiviral Synergy Between Inhibitors of HIV Proteinase and Reverse Transcriptase", Antiviral Chem. and Chemotherapy, 4(3), pp. 161-66 (1990).

S. Crawford et al., "A Deletion Mutation in the 5' Part of the pol Gene of Moloney Murine Leukemia Virus Blocks Proteolytic Processing of the gag and pol Polyproteins", J. Virol., 53, pp. 899-907 (1985).

M. Cushman et al., "Development of Methodology for the Synthesis of Stereochemically Pure Phe Ψ [CH₂N] Pro Linkages in HIV Protease Inhibitors", J. Org. Chem., 56, pp. 4161-67 (1991).

D.S. Dhanoa et al., "The Synthesis of Potent Macroyclic Renin Inhibitors", Tetrahedron Lett., 33, pp. 1725-28 (1992).

G.B. Dreyer et al., "Hydroxyethylene Isostere Inhibitors of Human Immunodeficiency Virus-1 Protease: Structure-Activity Analysis Using Enzyme Kinetics, X-ray Crystallography, and Infected T-Cell Assays", Biochemistry, 31, pp. 6646-59 (1992).

G.A. Flynn et al., "An Acyl-Iminium Ion Cyclization Route to a Novel Conformationally Restricted Dipeptide Mimic: Applications to Angiotensin-Converting Enzyme Inhibition", J. Am. Chem. Soc., 109, pp. 7914-15 (1989).

G. Fontenot et al., "PCR Amplification of HIV-1 Proteinase Sequences Directly from Lab Isolates Allows Determination of Five Conserved Domains", Virology, 190, pp. 1-10 (1992).

J. Freskos et al., "(Hydroxyethyl)sulfonamide HIV-1 Protease Inhibitors: Identification of the 2-Methylbenzoyl Moiety at P-2", Bio. & Med. Chem. Lett., 6, pp. 445-450 (1996).

A. Ghosh et al., "Potent HIV Protease Inhibitors Incorporating High-Affinity P₂-Ligands and (R)-(Hydroxyethylamino)sulfonamide Isostere", Bio. & Med. Chem. Lett., 8, pp. 687-690 (1998).

E.E. Gilbert, "Recent Developments in Preparative Sulfonation and Sulfation", Synthesis, 1969, pp. 3-10 (1969).

A. Goldblum, "Modulation of the Affinity of Aspartic Proteases by the Mutated Residues in Active Site Models", FEBS, 261, pp. 241-44 (1990).

D. Grobelny et al., "Selective Phosphinate Transition-State Analogue Inhibitors of the Protease of Human Immunodeficiency Virus", Biochem. Biophys. Res. Commun., 169, pp. 1111-16 (1990).

G.D. Hartman et al., "4-Substituted Thiophene- and Furan-2-sulfonamides as Topical Carbonic Anhydrase Inhibitors", J. Med. Chem., 35, pp. 3822-31 (1992).

S. J. Hays et al., "Synthesis of cis-4-(Phosphonoxy)-2-piperidinecarboxylic Acid, an N-Methyl-D-aspartate Antagonist", J. Org. Chem., 56, pp. 4984-4086 (1991).

J.R. Huff, "HIV Protease: A Novel Chemotherapeutic Target for AIDS", Journal of Medicinal Chemistry, 34(8), pp. 2305-14 (1991).

K.Y. Hui et al., "A Rational Approach in the Search for Potent Inhibitors Against HIV Proteinase", FASEB, 5, pp. 2606-10 (1991).

Y. Kiso et al., "'O→N Intramolecular Acyl Migration'-type Prodrugs of Tripeptide Inhibitors of HIV Protease", Peptides: Chemistry, Structure and Biology, 61, pp. 157-159 (1996).

N.E. Kohl et al., "Active HIV Protease Is Required for Viral Infectivity", Proc. Natl. Acad. Sci. USA, 85, pp. 4686-90 (1988).

X. Lin et al., "Enzymic Activities of Two-Chain Pepsinogen, Two-Chain Pepsin, and the Amino-Terminal Lobe of Pepsinogen", J. Biol. Chem., 267(24), pp. 17257-63 (1992).

K.P. Manfredi et al., "Examination of HIV-1 Protease Secondary Structure Specificity Using Conformationally Constrained Inhibitors", J. Med. Chem., 34, pp. 3395-99 (1991).

G.R. Marshall, "Computer-Aided Drug Design", Ann. Ref. Pharmacol. Toxicol., 27, pp. 193-213 (1987).

J.A. Martin, "Recent Advances in the Design of HIV Proteinase Inhibitors", Antiviral Research, 17, pp. 265-78 (1992).

T.D. Meek et al., "Inhibition of HIV-1 Protease in Infected T-Lymphocytes by Synthetic Peptide Analogues", Nature, 343, pp. 90-92 (1990).

M. Miller et al., "Structure of Complex of Synthetic HIV-1 Protease with a Substrate-Based Inhibitor at 2.3 Å Resolution", Science, 246, pp. 1149-52 (1989).

M. Miller et al., "Crystal Structure of a Retroviral Protease Proves Relationship to Aspartic Protease Family", Nature, 337, pp. 576-79 (1989).

K.H.M. Murthy et al., "The Crystal Structures at 2.2-Å Resolution of Hydroxyethylene-Based Inhibitors Bound to Human Immunodeficiency Virus Type 1 Protease Show That the Inhibitors Are Present in Two Distinct Orientations", J. Biol. Chem., 267, pp. 22770-78 (1992).

J.B. Nichols et al., "A Molecular Mechanics Valence Force Field for Sulfonamides Derived by ab initio Methods", J. Phys. Chem., 95, pp. 9803-11 (1991).

J. Palca, "Shooting at a New HIV Target", Science, 247, p. 410 (1990).

L.H. Pearl et al., "A Structural Model for the Retroviral Proteases", Nature, 329, pp. 329-51 (1987).

J.W. Perich et al., "The Synthesis of Multiple O-Phosphoseryl-Containing Peptides via Phenyl Phosphate Protection", J. Org. Chem., 53, pp. 4103-4105 (1988).

M.S. Plummer et al., "Design of Peptidomimetic Ligands for the pp60^{src} SH2 Domain", Bioorganic & Medicinal Chemistry, 5, pp. 41-47 (1997).

M. Popvic et al., "Detection, Isolation, and Continuous Production of Cytopathic Retroviruses (HTLV-III) from Patients with AIDS and Pre-AIDS", Science, 224, pp. 497-500 (1984).

M.D. Power et al., "Nucleotide Sequence of SRV-1, a Type D Simian Acquired Immune Deficiency Syndrome Retrovirus" Science, 231, pp. 1567-73 (1986).

N.A. Roberts, "Rational Design of Peptide-Based HIV Proteinase Inhibitors", Science, 248, pp. 358-61 (1990).

S. Scharpe et al., "Proteases and Their Inhibitors: Today and Tomorrow", Biochimie, 73, pp. 121-26 (1991).

S.K. Sharma et al., "Could Angiotensin I Be Produced from a Renin Substrate by the HIV-1 Protease?", Anal. Biochem., 198, pp. 363-67 (1991).

S. Yamaguchi et al., "Synthesis of HIV Protease Dipeptide Inhibitors and Prodrugs", Peptide Chemistry 1996, pp. 297-300 (1997).

Copies of all the documents listed above were submitted by applicants in the parent United States Patent Application No. 09/731,129, now United States Patent 6,613,734; or were cited by the Examiner during prosecution of said parent application. Pursuant to 37 C.F.R. §1.98(d), applicants have not enclosed copies of the listed documents. However, applicants stand ready to provide copies at the Examiner's request.

Applicants respectfully request that the documents listed above be (1) fully considered by the Examiner during the course of examination of this application and (2) printed on any patent issuing from this application. Applicants also request that the Examiner forward a copy of the enclosed Form PTO-1449, duly



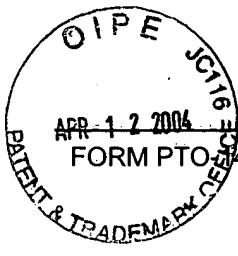
acknowledged and initialed by the Examiner, to the
undersigned with the next Communication.

Respectfully submitted,



James F. Haley, Jr. (Reg. No. 27,794)
Min Wang (Reg. No. 51,303)
Attorneys for Applicants

c/o FISH & NEAVE
Customer No. 1473
1251 Avenue of the Americas
New York, New York 10020-1104
Tel.: (212) 596-9000



FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. VPI/98-06DIV	SERIAL NO. 10/600,937
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	APPLICANTS Michael R. Hale, et al.	CONF. NO.: 6239
	FILING DATE June 20, 2003	GROUP 1615

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
	0 022 118	1/7/81	EP				
	0 181 071	5/14/86	EP				
	0 264 795	4/27/88	EP				
	0 346 847	12/20/89	EP				
	0 364 804	4/25/90	EP				
	0 434 365	6/26/91	EP				
	0 468 641	1/29/92	EP				
	0 486 948	5/27/92	EP				
	0 541 168	5/12/93	EP				
	0 594 540	4/27/94	EP				
	3542567	6/5/86	DE				

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not conformance and not considered. Include copy of this form with next communication to applicant.

EV132198497US

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. VPI/98-06DIV	SERIAL NO. 10/600,937
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		APPLICANTS Michael R. Hale, et al.	CONF. NO.: 6239
		FILING DATE June 20, 2003	GROUP 1615

	2,167,759	6/4/86	GB				
	2,200,115	7/27/88	GB				
	WO90/07329	7/12/90	PCT				
	WO91/00725	1/24/91	PCT				
	WO91/18866	12/12/91	PCT				
	WO92/08688	5/29/92	PCT				
	WO92/08698	5/29/92	PCT				
	WO92/08699	5/29/92	PCT				
	WO92/08700	5/29/92	PCT				
	WO92/08701	5/29/92	PCT				
	WO92/17176	10/15/92	PCT				
	WO93/23368	11/25/93	PCT				
	WO93/23388	11/25/93	PCT				
	WO93/23379	11/25/93	PCT				
	WO94/04491	3/3/94	PCT				
	WO94/04492	3/3/94	PCT				
	WO94/04493	3/3/94	PCT				
	WO94/05639	3/17/94	PCT				
	WO94/10134	5/11/94	PCT				
	WO94/10136	5/11/94	PCT				
	WO94/18192	8/18/94	PCT				
	WO94/19322	9/1/94	PCT				
	WO95/06030	3/2/95	PCT				
	WO95/07269	3/16/95	PCT				
	WO95/09843	4/13/95	PCT				
	WO95/14016	5/26/95	PCT				
	WO95/32185	11/30/95	PCT				
	WO96/33184	10/24/96	PCT				
	WO96/33187	10/24/96	PCT				
	WO00/76961	12/21/00	PCT				
	59-46252	3/15/84	JP				
	59-48449	3/19/84	JP				

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. VPI/98-06DIV	SERIAL NO. 10/600,937
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		APPLICANTS Michael R. Hale, et al.		CONF. NO.: 6239
		FILING DATE June 20, 2003	GROUP 1615	
	61-71830	4/12/86	JP	

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER INITIAL	
	Thompson et al, Ann. Reports Med. Chem., 36, pp. 247-257 (2001).
	Polman et al, BMJ, 321, pp. 490-494 (2000).
	Cohen et al, J. Neuroimmun., 98, pp. 29-36 (1999).
	Menendez-Arias et al., "Moloney Murine Leukemia Virus Protease: Bacterial Expression and Characterization of the Purified Enzyme," Virology, 1996, pp. 557-563 (1993).
	Berger et al., "Multiple-sclerosis-like Illness Occurring with Human Immunodeficiency Virus Infection," Neurology, 39, pp. 324-329 (1989).
	Facchini et al., "Human Immunodeficiency Virus-1 Infection and Multiple Sclerosis-like Illness in a Child," Pediatr. Neurol., 26, pp. 231-235 (2002).
	Banker et al., Modern Pharmaceutics, pp. 627-629 (1996).
	R. Bone et al., "X-ray Crystal Structure of the HIV Protease Complex with L-700,417, an Inhibitor with Pseudo C ₂ Symmetry", J. Am. Chem. Soc., 113, pp. 9382-84 (1991).
	J.C. Craig et al., "Antiviral Synergy Between Inhibitors of HIV Proteinase and Reverse Transcriptase", Antiviral Chem. and Chemotherapy, 4(3), pp. 161-66 (1990).
	S. Crawford et al., "A Deletion Mutation in the 5' Part of the pol Gene of Moloney Murine Leukemia Virus Blocks Proteolytic Processing of the gag and pol Polyproteins", J. Virol., 53, pp. 899-907 (1985).
	M. Cushman et al., "Development of Methodology for the Synthesis of Stereochemically Pure Pheψ[CH ₂ N]Pro Linkages in HIV Protease Inhibitors", J. Org. Chem., 56, pp. 4161-67 (1991).
	D.S. Dhanoa et al., "The Synthesis of Potent Macrocyclic Renin Inhibitors", Tetrahedron Lett., 33, pp. 1725-28 (1992).
	G.B. Dreyer et al., "Hydroxyethylene Isostere Inhibitors of Human Immunodeficiency Virus-1 Protease: Structure-Activity Analysis Using Enzyme Kinetics, X-ray Crystallography, and Infected T-Cell Assays", Biochemistry, 31, pp. 6646-59 (1992).
	G.A. Flynn et al., "An Acyl-Iminium Ion Cyclization Route to a Novel Conformationally Restricted Dipeptide Mimic: Applications to Angiotensin-Converting Enzyme Inhibition", J. Am. Chem. Soc., 109, pp. 7914-15 (1989).
	G. Fontenot et al., "PCR Amplification of HIV-1 Proteinase Sequences Directly from Lab Isolates Allows Determination of Five Conserved Domains", Virology, 190, pp. 1-10 (1992).
	J. Freskos et al., "(Hydroxyethyl)sulfonamide HIV-1 Protease Inhibitors: Identification of the 2-Methylbenzoyl Moiety at P-2", Bio. & Med. Chem. Lett., 6, pp. 445-450 (1996).
	A. Ghosh et al., "Potent HIV Protease Inhibitors Incorporating High-Affinity P ₂ -Ligands and (R)-(Hydroxyethylamino)sulfonamide Isostere", Bio. & Med. Chem. Lett., 8, pp. 687-690 (1998).

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. VPI/98-06DIV	SERIAL NO. 10/600,937
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		APPLICANTS Michael R. Hale, et al.	CONF. NO.: 6239
		FILING DATE June 20, 2003	GROUP 1615

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER INITIAL	
	E.E. Gilbert, "Recent Developments in Preparative Sulfonation and Sulfation", <u>Synthesis</u> , 1969, pp. 3-10 (1969).
	A. Goldblum, "Modulation of the Affinity of Aspartic Proteases by the Mutated Residues in Active Site Models", <u>FEBS</u> , 261, pp. 241-44 (1990).
	D. Grobelny et al., "Selective Phosphinate Transition-State Analogue Inhibitors of the Protease of Human Immunodeficiency Virus", <u>Biochem. Biophys. Res. Commun.</u> , 169, pp. 1111-16 (1990).
	G.D. Hartman et al., "4-Substituted Thiophene- and Furan-2-sulfonamides as Topical Carbonic Anhydrase Inhibitors", <u>J. Med. Chem.</u> , 35, pp. 3822-31 (1992).
	S. J. Hays et al., "Synthesis of cis-4-(Phosphonoxy)-2-piperidinecarboxylic Acid, an N-Methyl-D-aspartate Antagonist", <u>J. Org. Chem.</u> , 56, pp. 4984-4086 (1991).
	J.R. Huff, "HIV Protease: A Novel Chemotherapeutic Target for AIDS", <u>Journal of Medicinal Chemistry</u> , 34(8), pp. 2305-14 (1991).
	K.Y. Hui et al., "A Rational Approach in the Search for Potent Inhibitors Against HIV Proteinase", <u>FASEB</u> , 5, pp. 2606-10 (1991).
	Y. Kiso et al., "O→N Intramolecular Acyl Migration'-type Prodrugs of Tripeptide Inhibitors of HIV Protease", <u>Peptides: Chemistry, Structure and Biology</u> , 61, pp. 157-159 (1996).
	N.E. Kohl et al., "Active HIV Protease Is Required for Viral Infectivity", <u>Proc. Natl. Acad. Sci. USA</u> , 85, pp. 4686-90 (1988).
	X. Lin et al., "Enzymic Activities of Two-Chain Pepsinogen, Two-Chain Pepsin, and the Amino-Terminal Lobe of Pepsinogen", <u>J. Biol. Chem.</u> , 267(24), pp. 17257-63 (1992).
	K.P. Manfredi et al., "Examination of HIV-1 Protease Secondary Structure Specificity Using Conformationally Constrained Inhibitors", <u>J. Med. Chem.</u> , 34, pp. 3395-99 (1991).
	G.R. Marshall, "Computer-Aided Drug Design", <u>Ann. Ref. Pharmacol. Toxicol.</u> , 27, pp. 193-213 (1987).
	J.A. Martin, "Recent Advances in the Design of HIV Proteinase Inhibitors", <u>Antiviral Research</u> , 17, pp. 265-78 (1992).
	T.D. Meek et al., "Inhibition of HIV-1 Protease in Infected T-Lymphocytes by Synthetic Peptide Analogues", <u>Nature</u> , 343, pp. 90-92 (1990).
	M. Miller et al., "Structure of Complex of Synthetic HIV-1 Protease with a Substrate-Based Inhibitor at 2.3 Å Resolution", <u>Science</u> , 246, pp. 1149-52 (1989).
	M. Miller et al., "Crystal Structure of a Retroviral Protease Proves Relationship to Aspartic Protease Family", <u>Nature</u> , 337, pp. 576-79 (1989).
	K.H.M. Murthy et al., "The Crystal Structures at 2.2-Å Resolution of Hydroxyethylene-Based Inhibitors Bound to Human Immunodeficiency Virus Type 1 Protease Show That the Inhibitors Are Present in Two Distinct Orientations", <u>J. Biol. Chem.</u> , 267, pp. 22770-78 (1992).

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. VPI/98-06DIV	SERIAL NO. 10/600,937
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		APPLICANTS Michael R. Hale, et al.	CONF. NO.: 6239
		FILING DATE June 20, 2003	GROUP 1615

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not conformance and not considered. Include copy of this form with next communication to applicant.



Attorney Docket No. VPI/98-06DIV

Applicants : Michael R. Hale, et al.
Application No. : 10/600,937 Confirmation No.: 6239
Filed : June 20, 2003
For : SULFONAMIDE INHIBITORS OF ASPARTYL
PROTEASE
Group Art Unit : 1615
Examiner : Not yet assigned

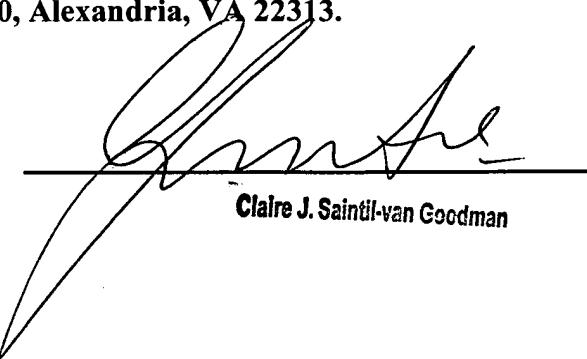
New York, New York 10020
April 12, 2004

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

"Express Mail" mailing label number EV132198497US

Date of Deposit April 12, 2004

I hereby certify that this paper/fee is being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Hon. Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313.



Claire J. Saintil-van Goodman

Encl:

- Transmittal Letter (in duplicate);
- Statement Under 37 C.F.R. §§ 1.56 and 1.97(b) (in duplicate);
- Form PTO-1449 (in duplicate)